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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/954,717	09/17/2001	Kenneth Noddings	P051	7607

25784 7590 06/17/2004

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EXAMINER	
LAZOR, MICHELLE A	

ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/954,717	NODDINGS ET AL.
	Examiner	Art Unit
	Michelle A Lazor	1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/17/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) *3,14-16,25,27-33 and 42-44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-13,17-24,26,34-41 and 45-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/12/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Claims 1, 2, 4 – 13, and 26 in the reply filed on 5/17/04 is acknowledged. The traversal is on the ground(s) that with respect to Inventions I and II, the claims are not unrelated, and with respect to Inventions I/II and IV, Claim 1 does not exclude the use of injection molding in applying the formable material as argued by the Examiner. Examiner agrees with Applicant in regards to the first argument, and therefore has examined Inventions I and II below. However, in regards to the second argument, Examiner has not found the arguments persuasive because the product as claimed could be made by another and materially different process, such as forming the waveguide, and aligning the optical components separately. The product made is not distinguished by the method of making.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 26, 34 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Kragl et al. (U.S. Patent No. 5475775).

Regarding Claims 1, 2, 26, and 34, Kragl et al. disclose a method of forming an assembly of optical components, comprising positioning a first component, such as an optical fiber, in a mold or a tool having a pattern; positioning a second component, such as an optical fiber, in a

mold or a tool having a pattern; and applying a formable material into the mold or tool to form a waveguide between the first and second components, the waveguide forming an optical path between the first component and the second component (Abstract; column 4, line 65 – column 5, line 33 and column 6, lines 42 – 47). Thus Kragl et al. disclose all the limitations of Claims 1, 2, 26, 34, and 35, and anticipate the claimed invention.

Regarding Claim 39, Kragl et al. disclose an optical fiber or waveguide (column 2, lines 8 – 22). Thus Kragl et al. disclose all the limitations of Claim 39, and anticipate the claimed invention.

4. Claims 1, 2, 17, 18, 24, 26, 34, 39 – 41, 45, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Blyler, Jr. et al. (U.S. Patent No. 5308555).

Regarding Claims 1, 2, 17, 18, 26, 34, 40, and 45, Blyler, Jr. et al. disclose a method of forming an assembly of optical components, comprising positioning a first component, such as an optical fiber, in a mold or a tool having a pattern; positioning a second component, such as an optical fiber, in a mold or a tool having a pattern; and applying a formable material into the mold or tool to form a waveguide between the first and second components, the waveguide forming an optical path between the first component and the second component, wherein the formable material is hardened and later removed (column 3, lines 13 – 31 and 39 – 62; column 5, lines 26 – 48). Thus Blyler, Jr. et al. disclose all the limitations of Claims 1, 2, 17, 18, 26, 34, 40, and 45, and anticipate the claimed invention.

Regarding Claims 24, 39, 41, and 51, Blyler, Jr. et al. disclose an optical fiber or optical assembly (column 3, lines 39 – 62). Thus Blyler, Jr. et al disclose all the limitations of Claims 24, 39, 41, and 51, and anticipate the claimed invention.

5. Claims 34, 35, 38, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Noba et al. (U.S. Patent No. 5013495).

Noba et al. disclose a method of terminating an optical fiber, comprising inserting the optical fiber into a mold; and inserting into the mold a formable light-carrying material, the light carrying material contacting the optical fiber and forming a light path to or from the optical fiber, wherein the light path includes two ends, a proximal end carrying light to or from the optical fiber and a distal end and further comprising forming the distal end into a connecting structure (Abstract), in which the connecting structure has an optical axis and in which a connecting surface may be oriented at an angle of between 0 degrees and 55 degrees from a normal to the optical axis (Figure 17; column 1, lines 40 – 50).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kragl et al. as applied in Claim 1 above, in view of Daniel (U.S. Patent no. 4466697).

Regarding Claims 4 – 9, 10, 12, and 13, Kregl et al. disclose all the limitations of Claim 1, but do not disclose the support structure to include molding a second, formable, sticky cladding material onto the first and second components and the waveguide to form the support structure, wherein the formable material includes fixing the first and second components in alignment, and provides protection or an enclosure to the structure, as well as providing an

additional or third formable material. However, Daniel discloses molding conventional cladding and an additional second protective coating over an optical fiber (column 2, lines 31 – 43 and column 7, lines 28 – 38), which would inherently be "sticky" in order for the cladding material to adhere to the component. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to mold cladding onto the first and second components and the waveguide in order to protect the structure and facilitate alignment of the components, as well as permitting light to escape through the cladding layer at an angle which is greater than a specific critical angle (column 5, line 51 – column 6, line 15); and it would have been obvious to use a third formable material over the first and second components and the waveguide since it is well known and conventional to provide additional protection for an optical fiber structure (column 2, lines 34 – 37).

Regarding Claim 11, Kragl et al. disclose inserting a substrate element into the mold (column 5, line 60 – column 6, line 13), while Daniel teaches using a cladding material on an optical fiber as discussed above. Again, it would have been obvious to mold cladding onto the first and second components and the waveguide in order to protect the structure and facilitate alignment of the components.

8. Claims 4 – 13, 19 – 23, and 46 – 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blyler, Jr. et al. as applied in Claim 1 above, in view of Daniel.

Regarding Claims 4 – 13, 19 – 21, 46 – 48, and 50, Blyler, Jr. et al. disclose all the limitations of Claim 1, but do not disclose the support structure to include providing a support structure to support the first and second components and the waveguide as they are removed, molding a second, formable, sticky cladding material onto the first and second components and

the waveguide to form the support structure, wherein the formable material includes fixing the first and second components in alignment, and provides protection or an enclosure to the structure. However, Daniel discloses molding conventional cladding and an additional second protective coating over an optical fiber (column 2, lines 31 – 43 and column 7, lines 28 – 38), which would inherently be "sticky" in order for the cladding material to adhere to the component. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to mold cladding onto the first and second components and the waveguide in order to protect the structure and facilitate alignment of the components, as well as permitting light to escape through the cladding layer at an angle which is greater than a specific critical angle (column 5, line 51 – column 6, line 15).

Regarding Claim 22, Blyler, Jr. et al. disclose a lid, which is considered to be a prefabricated molded support structure onto the optical waveguide.

Regarding Claim 23, Blyler, Jr. et al. disclose the waveguide to be initially incompletely cured (column 3, lines 46 – 47).

9. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noba et al. as applied in Claim 35 above, in view of Devens, Jr. et al. (U.S. Patent No. 5898810).

Noba et al. disclose all the limitations of Claim 35, but do not disclose the connecting structure to include a surface that is sufficiently smooth to reduce light scattering, in which the surface roughness is less than 600nm. However, it is well known in the art to use smooth surfaces to reduce light scattering, whith a surface roughness well below 600nm (column 3, lines 38 – 58). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include a smooth surface, including a surface roughness less than 600nm, on the

connecting structure to reduce light scattering and thereby increase the efficiency of light transportation (column 3, lines 43 – 46).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ehrfeld et al. (U.S. Patent No. 5376506) and Shioda (U.S. Patent No. 6500603) disclose molds which include waveguide structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle A Lazor whose telephone number is 571-272-1232. The examiner can normally be reached on Mon - Wed 6:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL
6/8/04

MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER